SYRINGO-MYELIA, OPERATION—EXPLORATION OF CORD—WITHDRAWAL OF FLUID—EXHIBITION OF PATIENT.[1]

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IT is not my purpose to write an elaborate paper upon the subject of syringo-myelia, but the cases thus far reported, in this country at least, are so few in number that I feel sure that any addition to our clinical knowledge of this most interesting lesion will be gladly received, and therefore without further introduction or apology I shall proceed to narrate the history of the case, which Dr. Abbe and myself have the honor of presenting to you this evening.

The history of the case is as follows:

J. D., twenty-six years of age, male, telegrapher, born in the United States, consulted me in November, 1891. He was a young man of more than average intelligence, and gave a very clear account of his previous history. Free from any hereditary taint, he himself had always been well until the age of sixteen, when he had an attack of cerebro-spinal meningitis. He recovered from this, and was apparently as well as ever for four years. In the spring of 1886 he began to have numbness in the left foot, quickly followed by a slight loss of power. Three months later the same symptoms appeared in the right foot.

The weakness gradually increased, but did not seriously interfere with his walking, until December, 1887.

On December 16, 1887, while going down-stairs, he suddenly lost control of his legs, and fell. On attempting to get up he could not walk. His right leg was very rigid, and voluntary movements of legs were almost lost.

He soon began to improve, and three months later was able to walk with a cane.

From the spring of 1888 to 1890 he noticed little change. He was able to go about alone during this period, but was obliged to use a cane.

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[1] Read before the Section of Neurology, Academy of Medicine, April 15, 1892.

In the fall of 1889 he applied for treatment at the Vanderbilt Clinic, and was treated in the neurological department until the latter part of 1890. The examinations which were then made from time to time, and which I owe to the courtesy of Dr. Vought, are exceedingly interesting as showing the progress of the disease, and as they were made by specialists in nervous diseases, they add materially to the value of the history.

The first examinations showed the legs flexed involuntarily upon the thighs, and the thighs upon the abdomen. There was considerable spastic rigidity in the muscles of the legs, with tendon-reflexes exaggerated.

The patient was examined under ether by Drs. Parker and Gallaudet, with the result that the muscles did not relax and the reflexes remained exaggerated.

In January, 1890, there was motor disturbance of the right leg, with sensory disturbance of the left anterior thigh and lumbar regions.

In August, 1890, there was little change in the nature of the symptoms, but a slight increase in their severity. The back of the left leg and the entire front showed considerable uneven analgesia and anæsthesia.

The treatment (electricity) apparently not benefiting him, he became somewhat discouraged and gave it up.

I omitted to state that in 1887, a year after the beginning of the symptoms, he had a supposed "primary lesion," and underwent specific treatment for two years, taking large amounts of iodide of potassium and mercury. The fact that the lesion appeared within a week after infection and that no secondary symptoms of any kind followed make it extremely doubtful that he had syphilis.

During the year 1891 his symptoms became progressively and much more rapidly worse, and he was obliged to use two canes most of the time.

He had some pain in the legs, frequent involuntary contractions of the muscles of the legs and thighs, more marked in the right; increased spastic rigidity, which caused the feet to assume a constant equinus position interfering seriously with walking. He complained of numbness and loss of sensation in the left leg, with loss of power in both legs.

The right leg was much more rigid than the left, and irritation of the muscles caused violent contractions. To avoid repetition, I will say nothing further as to the conditions present, when seen by me, November, 1891, but will give Dr. C. L. Dana's careful examination, which was made soon after the patient came under my care. He was admitted to the Post-Graduate Hospital in November, 1891, and remained three weeks in order to permit a thorough examination.

EXAMINATION OF DR. C. L. DANA.

Vaso-motor Irritability.—Viscera: Has some loss of control over the bladder; is constipated and cannot feel the passage of fæces always. Sexual function is not abolished.

Motion.—Spastic paraplegia not complete, and most paralysis in the right leg. Motion is possible, and patient walks with difficulty. Legs rigid and reflexes exaggerated, both deep and skin; ankle clonus. Right leg more spastic and irritable. No atrophy or paralysis of a muscular group, but some general atrophy.

Sensation.—Right leg: Band of triple anæsthesia from eighth dorsal to groin and buttock; pathic and thermic anæsthesia most marked. Very slight anæsthesia elsewhere.

Left leg: Tactile anæsthesia most marked just in lumbar region behind and in corresponding part in front. Pathic-anæsthesia general, and extends to twelfth dorsal vertebra. Thermic anæsthesia general, but extends higher than pathic or tactile. Muscle sense fairly good; better in right. Touch on left leg felt on right.

This imperfect type of Brown-Sequard paralysis was thought by Dr. Dana most probably to depend upon an incomplete transverse myelitis, extending as high as eighth dorsal vertebra. No absolute diagnosis was made. The patient had come to me with an earnest desire to have an operation performed if there was any possibility of affording him relief. The tumor of the cord would be the only thing that could offer him any hope of benefit from operative interference, and he was told that the chances of finding a tumor were exceedingly small.

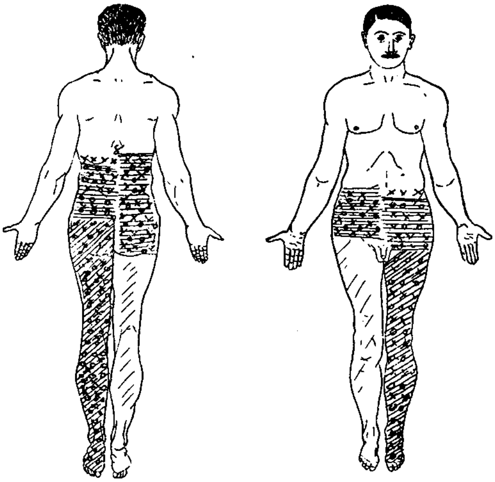
He was seen several times both by Dr. Abbe and Dr. Dana; and after Dr. Dana's examination had been explained to him, he still expressed a desire for an exploratory operation.

This was performed in the month of December, 1891, at the Post-Graduate Hospital. The details of the operation as well as the nature of the pathological condition found, will be given by Dr. Abbe.

The after-history contained little worthy of note. The wound was dressed on the second day. The heavy dressing was found soaked with bloody discharge, but there was no decomposition. The tube was removed.

He had little control over the bladder or rectum, and the twitchings of the legs were increased.

On the sixth day the temperature rose to 103½°, and the spasms of the legs, clonic in character, became frequent and severe, causing great discomfort to the patient. The wound was somewhat reddened about the edges, and from the site of the drainage tube there was a slight discharge of a sero-sanguinolent nature. There was no suppuration at any time. The patient had a slight bronchitis before the operation, and this became quite severe after the operation, which might account for the rise of temperature.



The horizontal lines represent tactile anæsthesia. The oblique lines represent the same less marked. The circular marks represent pathic anæsthesia; the crosses, thermic anæsthesia.

At the end of the second week he began to improve, and the spasms became less frequent. The rigidity of the muscles of the legs also diminished. He gradually began to regain control of the bladder and rectum. The improvement has gone on steadily up to the present time. I examined him carefully yesterday and found that the areas of anæsthesia, tactile, thermal and pathic were practically the same as at the time of Dr. Dana's examination before the operation.

His muscular power is also about the same, being able to walk with the help of two canes.

The spastic condition of the two legs is still relatively and absolutely the same. The right leg is much more rigid than the left, but moderate force, if applied constantly, soon overcomes the spasticity, and the leg can be completely flexed or extended. The same movements are possible, voluntarily, in the left leg, but they require considerable effort on the part of the patient. The functions of the bladder and rectum remain practically the same as before the operation.

Measurements of both legs are the same, and, aside from slight general atrophy, trophic symptoms are absent.

The case reported shows the difficulties lying in the way of a correct diagnosis of syringo-myelia. These difficulties were for a long time considered insuperable, and only within the last decade have the cases been carefully studied, and an attempt made to classify in a scientific manner, the obscure and often widely varying symptoms; Strümpell[2] (in 1885) said, "the diagnosis can never be made with certainty, but only hypothetically by the exclusion of other possibilities."

The more recent investigations on this subject, particularly those of Schultz[3] and Baümler,[4] have shown that there is a certain grouping of symptoms characteristic of the disease, and the well-known and most valuable paper of Dr. M. Allen Starr,[5] has done much to increase our knowledge of this hitherto little understood disease.

The pathology as well as the clinical symptoms of the disease have been so well described by Dr. Starr, and again very recently by Dr. Vought,[6] it is unnecessary for me to more than refer to them here. The symptoms may be briefly classified as follows:

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[2] Text-book of Medicine, second edition.

[3] Zeitschrift f. klin. Med., xiii., 525.

[4] Deutsch. Archiv f. klin. Med., xl., 443.

[5] Amer. Jour. of Amer. Sci., 1888, iii., 6.

[6] N. Y. Med. Jour., Nov. 21, 1891.

1. Trophic.
2. Sensory.
3. Vaso-motor.

All of these symptoms may vary within the widest limits, from no symptoms at all, to such a wide range of symptoms as to completely obscure the diagnosis.

With all the symptoms present, the diagnosis is easy.

The anæsthesia and analgesia furnish an accurate method of locating the extent of the lesion, since they correspond with the location. "Lesions in the dorsal region produce bands of anæsthesia at their level around the trunk. Lesions in the lumbar enlargement cause anæsthesia of the front of the thigh and leg." Starr.

In the present case the motor symptoms show the anterior cornua are affected. This occurs in about one-half of the reported cases (24 of 56).

The sensory symptoms show the posterior cornua are likewise invaded (32 of 56).

The vaso-motor and trophic symptoms in the present case, contrary to the general rule, are less prominent than the other symptoms. This shows that the destruction of the central gray matter is not as yet great.

The involvement of the lateral columns must be extensive, as the spastic paralysis has long been a prominent feature, so much so, that the diagnosis of spastic paraplegia might easily have been made, were it not for the presence of the sensory symptoms.

The presence of a fusiform enlargement between the eighth and eleventh dorsal vertebræ, shown by the operation to be a fluid accumulation in or near the central canal of the cord, joined to the clinical history already presented, proves the case to be one of syringo-myelia—probably depending upon the fluidifying of a gliomatous tumor located in the region referred to.

While the operation has not cured the patient, the perfect recovery from the operation and the increased knowledge which the operation has given, will, I am sure, not be without influence in placing the spinal cord within the legitimate field of operative surgery.—W. B. COLEY.

REPORT BY DR. ABBE.

The patient, the medical aspect of whose case has been presented by Dr. Coley, was seen by me in consultation a few days before operation, and presented symptoms of such an unusual character that I concluded that there was either a transverse myelitis, or possibly a tumor pressure. In either case I felt justified in advising an exploratory operation, inasmuch as my experience in numerous cases had led me to regard operations upon the spinal cord as not involving much danger *per se*.

Several methods of reaching the cord have been described by different surgeons, but they have faults which, in my experience, are done away with by a simpler method, which I have devised and carried out in several cases. All operators advise cutting away the muscles from both sides of the spinal processes, and then removing the spines with the interspinous ligaments. This substantial portion of the spine is entirely saved, without hindrance to the operator, by my method, which is described in the *New York Medical Record*, July 26, 1890, and is as follows:

An incision at least six inches long is made in the median line, and carried through the muscles close to the spines, down to the laminæ on one side only. The muscles are now scraped from the surface of the laminæ by a rather sharp-curved periostium elevator, and drawn outward. A sharp chisel, or moderate sized cutting pliers, is now used upon the bases of the spinous processes to be removed, and a block of three or four spines, with the muscles still attached to one side, is thus liberated so that it can be readily drawn to the opposite side, periostium elevator being applied to scrape the muscles from the remaining side of the laminæ; the interspinous ligament is not cut. To uncover three sets of laminæ, it is best to cut loose four or five spinous processes.

Thus the entire breadth of both laminæ is quickly exposed, a pair of good retractors holding the muscle in one direction, and the muscle plus the liberated spines in the other. A pair of curved or straight gothic-pointed small rougeurs can now be made to quickly gnaw away the laminæ, so as to lay bare as much of the spinal cord as is needed. By this method the quickest possible approach to the spinal cord is made, with the least sacrifice of sound tissue and the least hemorrhage—two very important points.

Following this method in the case under consideration, I removed the laminæ of the ninth, tenth, and eleventh dorsal vertebræ. Usually the dura of the cord is rounded out when exposed, but does not fill the vertebral canal. In this case, however, there was a large fusiform dilatation of the cord, filling completely the vertebral canal. I therefore split up the dura for two inches and a half, and was greatly suprised to find no spinal fluid escape, as there is usually a flow of one or two ounces.

The cord presented a white surface. It was distended to twice its normal size and thinned laterally, the posterior columns being white and fairly marked. The substance of the cord was much wasted, and spread out on what seemed to be, on palpation, a lemon-shaped central cyst. The veins of the surface were very little more distended than normal.

The meninges were delicately adherent to the inside of the dura, not enough, however, to prevent a probe passing in any direction with ease.

A hypodermic aspirating needle was used to prick the cyst through the posterior columns. This caused some twitchings of the spinal muscles.

A colorless watery fluid was withdrawn to the extent of a drachm and a half, which evacuated the cyst and allowed the swollen cord to collapse.

There being no reason for further interference, I sutured the dural incision, which was two and a half inches long, with fine catgut continuous suture. This method seals the dura closely, and in the numerous cases in which I have resorted to it, has never been followed by leakage of the spinal fluid.

The displaced block of spinous processes was now restored to its position in the median line, and fixed by three buried catgut sutures to the opposing spinal muscles.

A rubber drainage-tube of small size was inserted to the level of the dura at the lower angle of the wound, and the superficial parts closed by continuous suture.

No plaster jacket or other support is ever needed in these cases, unless there has been a fracture of the bodies of the vertebra.

Uninterupted convalescence occurred, and the wound-scar to-night shows the substantial condition left by not gnawing away the spinous processes, which usually requires filling in by granulation.*—ROBERT ABBE.

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* In May, 1892, the patient was taken suddenly worse: spastic symptoms increased in severity; cystitis developed—very painful, and resisting all treatment. He failed rapidly, and died June 6, 1892. Every effort was made to secure an autopsy, but without success.